REPORT

of the

FIRST SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT CONFERENCE

July 23 and 24, 1940

Tifton, Georgia

Reported by

O. S. Aamodt, 1/ Permanent Secretary

1/ Head Agronomist in Charge, Division of Forage Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

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TABLE OF CONTENTS

ORGANIZATION OF THE SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT CONFERENCE

At the annual meeting of the American Society of Agronomy in New Orleans, December 1939, there was some informal discussion regarding the desirability of the pasture and forage crop specialists in the South holding a conference to discuss mutual problems common to the Southern States. Following the Agronomy meetings, the desirability of proceeding with such an organization was discussed with experiment station officials and the pasture specialists in the various States. The general opinion seemed to be that the most representative organization in the South to sponsor such a conference group would be the Association of Southern Agricultural Workers. Mr. R. L. Lovvorn, of the North Carolina Experiment Station, called a conference of research workers interested in pasture and forage crops at the annual meeting in Birmingham in February, 1940.

"SOUTHEASTERN FORAGE CROPS GROUP PRELIMINARY MEETING

9:00 P.M., February 7, 1940

Birmingham, Alabama

Meeting opened by reading of letter written by Dr. O. S. Aamodt, Principal Agronomist in Charge of Division of Forage Crops and Diseases, Bureau of Plant Industry, in regard to organization of the forage crops workers of the Southeastern United States. This was followed by general discussion of the proposed organization and its possible functions.

It was the consensus of opinion that it would be wise to follow the general pattern of the Southern Corn Improvement Conference in formulating the new organization with Dr. O. S. Aamodt as permanent secretary.

Mr. R. L. Lovvorn was elected temporary chairman of the group. Dr. G. W. Burton moved that the executive committee be chosen by a secret ballot at a second meeting to be held on the evening of February 8th; each man voting should list four names on his ballot, those men having a majority of votes being elected. Mr. G. E. Ritchey seconded the motion and it was passed.

The temporary chairman appointed a committee to formulate the plans for organization. The committee was instructed to

report at a second meeting of the group to be held at 7:30 P.M. Thursday, February 8, 1940. The committee was as follows:

G. W. Burton, Georgia D. G. Sturkie, Alabama
G. E. Ritchey, Florida H. W. Bennett, Mississippi
R. L. Lovvorn, North Carolina

Ben W. Smith
Acting Secretary"

"January 27, 1940

"Mr. R. L. Lovvorn,
Department of Agronomy,
Agricultural Experiment Station,
Raleigh, North Carolina.

Dear Mr. Lovvorn:

I have your letter of January 17, relative to an organization of forage crop workers in the Southeastern States. I am very pleased to note the interest shown and that a definite attempt is being made to bring the forage crop specialists together to consider their mutual problems. I also note that you are arranging for a meeting during the conference of Southern Agricultural Workers at Birmingham. Unfortunately I shall not be able to be present. I am of the opinion, however, that with your leadership and with the support of others that I know are interested in this move, you will be successful in making a beginning toward a Grassland Conference.

At the annual meetings of the Association of Southern Agricultural Workers it is difficult to give the improvement of grassland and other forage crops all the attention they merit. One grassland symposium each year in the meeting of the Association of Southern Agricultural Workers would help to keep all those workers in attendance informed of the progress in the program. In cotton, tobacco, and other important southern crops, considerable attention has been given to the methods, technics and observations over a long period of time. There is a general understanding between the specialists in these fields as to technical language, procedures and objectives. In grassland and other forage crops we have an entirely different situation. Very little is known about the technic and procedures and even though we have a general idea of the role that these crops are to play in the agricultural

program of the South, the objectives for improvement are not clear. Consequently, I think there is a real need for those specialists in agronomy, plant breeding, soils, animal nutrition and plant pathology interested in the improvement and utilization of grasses and legumes in the South to get together in the summer in special conferences and devote two or three days to their particular problems.

I think we might take note of the organization of research and progress in certain other major crops in this country. In hybrid corn through the organization of a "Hybrid Corn Conference", in alfalfa through the "Alfalfa Improvement Conference", and malting barley through the "Malting Barley Conference", attention has been focused sharply on their respective problems through the conference plan. More recently, I understand that cotton and hybrid corn in the South has received special attention through a similar organization. I wish to emphasize the importance of having such conferences in the early years of the organization of research on any special crop. Grassland research has been so long neglected that we are practically on the threshhold of a new field of investigation.

A grassland roup has been organized successfully around the U. S. Regional Pasture Research Laboratory for the Northeastern States. It is not necessary, however, to have a formal organization such as a Regional Laboratory in order to coordinate the interest and activities of workers in any particular region. The success of the Corn and Alfalfa Conferences are good illustrations of what can be done without a formal organization. In the Northeastern States the workers now meet annually at a special conference with the full approval of the Directors in the Northeastern Region, and discuss the problems relating to grass and legume improvement, pasture management, and forage production. At the last conference held in October, it was interesting to note that much of the discussion was devoted to the activities of the workers at their own experiment stations rather than to the activities of the Laboratory.

An informal grassland group has also been formed in the Great Lakes Region. This group met last summer (1939) following the meeting of the Corn Belt Section of the American Society of Agronomy at Wooster, Ohio. The day previous to the general meeting, they examined the pasture and forage experimental plots of the Ohio Agricultural Experiment Station. The second day, when others not interested particularly in grasses and forages had left, they settled down to an all-

day conference to discuss grassland problems. It was the general opinion of the group that similar conferences should be held in the future. Rotating the conferences among the experiment stations would provide an opportunity to observe the programs of their co-workers.

Similar groups have been organized and are actively working in the Great Plains area. The group in the Southern Great Plains, centering its activities around Woodward, Oklahoma and Amarillo, Texas, has been particularly successful. It is organized as a Revegetation Committee and operates as a sub-group of the Southern Great Plains Research Committee. The committee meets separately and thus is able to devote its entire attention to specific problems.

It would seem desirable and proper at some time in the near future to bring together the pasture and forage workers in the Southern States for a two-day conference at some point such as Tifton, Georgia, where a great deal of excellent grass and legume improvement and pasture work is under way. I have suggested Tifton as a possible meeting point for such a group since it is centrally located and the results obtained there should be applicable to a large part of the Coastal Plain. I wish to give you my assurance that in the event such a conference is organized that we, in the Division of Forage Crops, will cooperate in every possible way in the development of a coordinated grassland research program for the South.

I shall be pleased to assist in any other way before or after the Birmingham meetings. I am particularly interested in the grassland and other forage problems of the South and expect to devote a considerable portion of my time to them while in my present position.

With best wishes for a successful meeting at Birmingham, I am

Sincerely yours,

/s/ O. S. Aamodt
Principal Agronomist in Charge
Division of Forage Crops and Diseases"

"Temporary Committee Report on the Organization of Southern Pasture and Forage Crop Improvement Conference

"The temporary committee recommends the following:

Name: The name shall be 'The Southern Pasture and Forage Crop Improvement Conference'.

Membership: Membership shall consist of workers actively engaged in pasture and forage crop improvement.

Objectives:

1. To encourage the cooperation of all groups that are in a position to contribute to the pasture and forage crop improvement program.

2. To aid in the correlation of activities between workers.

3. To assist in the development of the program of the Association of Southern Agricultural Workers.

4. To act as a medium of exchange of ideas, methods of procedure and needs of workers.

5. To act as an agency for the exchange of plant material.

6. To assist in the formation of a policy for the distribution of material.

Officers: The Conference shall be guided by an executive committee of five members, one of whom shall be the Principal Agronomist in Charge, Division of Forage Crops and Diseases, U. S. Department of Agriculture, and who shall serve as permanent secretary. The other four members shall be elected for a term of four years. No two members shall be from the same state. It is suggested that the member receiving the greatest number of votes at this election serve a four-year term, the second highest for a three year term, the third highest for a two year term and the fourth highest for a one year term in order that in the future one member shall be elected each year. The Chairman shall be elected by and from the Executive Committee and shall serve for a term of one year.

Meetings: The Executive Committee shall arrange for an annual meeting at the time of the Association of Southern Agricultural Workers. Summer meetings shall be held at the various experiment stations in the South where research programs in pasture and forage crops are in progress and at such time and frequency as the Executive Committee considers advisable. Both summer and winter meetings shall be held upon approval of a majority of the Experiment Station Directors of the Southern States.

Respectfully submitted,

Temporary Committee on Organization

H. H. Bennett, Mississippi
Glenn W. Burton, Georgia
D. G. Sturkie, Alabama
G. E. Ritchey, Florida
R. L. Lovvorn, North Carolina"

"Southeastern Pasture and Forage Crop Improvement Conference

Organization Meeting

7:30 P.M., February 8, 1940, Birmingham, Alabama

The meeting was called to order by the temporary chairman, Mr. R. L. Lovvorn, who then read the report of the temporary organization committee. A copy of this report is attached. The details of the report were discussed. It was the understanding of the group, as brought out by the discussion, that the group may include workers in animal husbandry as well as those in agronomic fields who are interested in pasture and forage crop improvement. The work 'improvement' as it appears in the name of the organization is intended to include all activities leading to better pasture and forage crops and to a better utilization of these crops.

Mr. R. E. Blaser moved that the report of the organization committee be adopted. Dr. D. G. Sturkie seconded this motion.

Mr. G. E. Ritchey offered an amendment to Mr. Blaser's motion to the effect that the present report be adopted as a temporary plan of organization, effective immediately,

and that it be replaced by a permanent agreement to be drawn up by the executive committee and presented at the first regular meeting of the conference. The amendment was seconded.

The amendment and the original motion were both adopted.

The meeting then proceeded to the election of the first Executive Committee as follows:

Dr. G. W. Burton, Tifton, Georgia, to serve 4 years

Mr. R. L. Lovvorn, Raleigh, N.C., to serve 3 years

Mr. R. E. Blaser, Gainesville, Fla., to serve 2 years

Dr. E. N. Fergus, Lexington, Ky., to serve 1 year

(At a meeting of the Executive Committee which was held on the same evening, Mr. R. L. Lovvorn was chosen as chairman)

Dr. Glenn W. Burton and Mr. Southwell of the Georgia Coastal Plain Station extended an invitation to the group from the Director of that Station, to the effect that the group should have its first meeting at Tifton during the summer of 1940.

Dr. D. G. Sturkie moved that the conference recommend to the Executive Committee that such a summer meeting should be held at Tifton, Georgia. The motion was seconded and passed.

The meeting was then adjourned.

Ben W. Smith,
Acting Secretary."

SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT CONFERENCE

COASTAL PLAIN EXPERIMENT STATION

Tifton, Georgia

July 23-24, 1940

A technical conference of crop, soil, nutritional and livestock specialists interested in the improvement, management and utilization of pasture and forage crops in the Southern States.

July 23 - Tuesday morning

9:00 A.M. Inspection of pasture and forage crop plots - Led by J. L. Stephens

July 23 - Tuesday afternoon

2:00 P.M. Round-table discussion (no papers--everyone participating) of fertility, seeding, grazing and management problems. R. L. Lovvorn, Chairman

July 24 - Wednesday morning

9:00 A.M. Inspection of breeding plots - Led by Glenn W. Burton

July 24 - Wednesday afternoon

2:00 P.M. Round-table discussion (no papers--everyone participating) of breeding and improvement problems. Glenn W. Burton, Chairman

Objectives of a breeding and improvement program from standpoint of:

1. Plant adaptation
2. Soil requirements
3. Livestock needs

Tuesday, July 23

No attempt has been made to report the discussions verbatum. A brief resume has been made of each of the major topics discussed and some of the more pertinent statements are recorded. Wherever there appeared to be a fairly general agreement upon any particular problem or method, a statement indicating the conclusion reached has been included in the minutes.

In the morning the group, consisting of approximately 40 pasture and forage crop specialists, inspected the pasture, forage and rotational plots on the Experiment Station. There were excellent experiments under way that clearly demonstrated the possibilities for pasture and forage improvement in the South. The field trip was under the general direction of J. L. Stephens.

In the afternoon the conference continued in the parlors of the men's dormitory, Abraham Baldwin Agricultural College. R. L. Lovvorn, chairman of the conference group, was in charge of the discussions. These discussions centered around three major topics:

Fertilizer treatments:

In the discussion of frequency of application of fertilizers, a report of results at Tifton indicated that 600 pounds per acre applied every 3 years was effective and practical, while P & K treatments on pilot plots showed a residual effect for 4-5 years. Similar results were reported from Florida although varying widely with soil types. Some soils in northeast Florida showed little residual effect from applications of superphosphate. Grasses responded to spring applications of fertilizers while clovers were benefited by fall applications. Inoculation of the seed was very important for success of legumes.

Lime sometimes was not necessary at Tifton, as indicated by growth response, but was needed with some sources of phosphate. Heavy applications of lime depressed the growth of grass. Some response was observed in Alabama. The kind of lime was reported as important in Florida, Dolomite being preferred by citrus trees and calcium lime by other crops, especially Medicago species on most soils. One report stated that Tifton and Norfolk soils required about 700 pounds of lime to raise the pH to 6.2, as shown by soil test and plant response. In response to a query as to whether the lime was applied for raising the pH or for increasing the growth of clover, it was pointed out that soil tests do help in determining the plant requirements. Phosphate penetrated better after a lime application. White clover was reported as growing suc-

cessfully in Florida on some soils at a pH of 3.8. The plant proved to be a better indicator than the quick soil test. Why not develop a specific soil test for each species?

Varied results with manure brought forward the question of varied response to different forms of nitrogen. Ammonia nitrate gave the best response in southern Florida.

Seeding methods:

A sufficiently high fertility level to give the seedlings a good start was reported as essential, especially for the better grasses, such as Dallis grass. Seeding at a time to avoid competition in the seedling stage with aggressive established species helped to obtain successful stands. Clovers were reported as being successfully established in carpet grass when sown in October. Lespedeza in some cases reduced the amount of carpet grass when sown at the right time.

Failures to obtain stands often results when soil amendments are not applied before seeding. In some places where thin stands of desirable species were already present good stands are obtained without seeding by the use of soil treatments.

Lespedeza may crowd out Kentucky bluegrass on some soils but later may be crowded out by bluegrass. Ecological and life history studies are needed of all species growing in association in recommended mixtures.

Inoculations of seed of white clover several times heavier than usually prescribed was recommended for some areas.

Grazing management:

The discussions under this topic were confined almost entirely to palatability of various forages used in pastures. Conflicting observations on the palatability of any particular species were ascribed to a number of causes. Among the more common are stage of growth, season, soil, fertility level, management, especially with mixtures, etc.

Palatability was determined by "the amount eaten and the good the animal got out of it". It was pointed out that there is a difference between "absolute palatability" and a "nip here and there". Final proof is animal production. Palatability may be greatly misinterpreted since it may not be correlated with actual feeding value, as for example, sweetclover. Bahia grass reported

as palatable at 4 inch heights but not above 6 inches. Lespedeza sericea not palatable one year but on the same field was palatable the next year. Cows usually ate soybeans in annual rotational pastures before pearl millet but one year the preference was reversed. There was a considerable difference of opinion regarding the importance of palatability as long as the forage was eaten.

Wednesday, July 24

Discussions continuing after dinner, and late into the night as small informal groups, helped to clarify in the minds of those in attendance some of the issues upon which there had been considerable discussion during the day.

In the morning the group inspected the breeding plots under the leadership of Dr. Glenn W. Burton. The intensive breeding program under way at Tifton gave a very excellent picture of the possibilities for improvement in a number of grass species.

The afternoon was devoted to a round-table discussion of the breeding and improvement problems under the chairmanship of Dr. Glenn W. Burton. The discussion was opened by Dr. Etlar Nielsen of Arkansas.

Breeding objectives:

"Plant Adaptation in the Forage Crop Breeding Program

by Etlar L. Nielsen, University of Arkansas

"Of primary importance in the consideration of 'Plant Adaptation' in the forage crop breeding program is the role played by the ecological factors. The role played by temperature, precipitation, and light and the relationship existing between these factors has long been recognized. In selecting breeding stock to fit into this program, in the past as well as at present, there has been and to a certain extent is a tendency to focus too little attention upon these factors. In most instances plants have definite ranges, and to attempt to extend species too far beyond the margins of these ranges has frequently led to discouraging vegetative and/or reproductive results. There are certain species, such as white clover, wherein temperature seems to be of primary importance in its seasonal performance, hence its winter performance in the South. There are certain indications that it is quite possible that a certain species of grass, which normally is limited to areas north of the 60° isotherm, may also play a part similar to that of white clover in certain areas of the Cotton Belt. Metabolically, plants of this species are sufficiently active in periods of mild weather so that they may produce

considerable grazing during the period from mid-January to June 1. Their dense rhizomatous root system makes it possible that the species may be further desirable because soils, to which the species is adapted, are generally in such a mucky state that less dense turf-forming species break under the weight of the grazing animal and for that animal to become 'mired down', a factor of considerable importance toward milk production and maintenance of the sward. Even though these species are adapted to but a few sections of the South, will it be economically sound to retain such grassland areas for vernal production alone? Will it be economically sound to make the necessary fertilizer applications to bring areas seeded to this species to good turf and to good productivity. These are factors that must be considered when one considers this or certain other species, or strains within species, adapted to certain areas.

Other factors, of which there are others here who are better qualified to comment upon than I, arise in the field of soil physics and possibly soil biology. It is a well known fact that rather extensive areas of native grasses, notably big and little bluestem, occurred in the present day Rice Belt of Arkansas. Recent attempts to reestablish areas of these species in this belt have not been particularly successful. Much and perhaps most of the difficulty encountered may perhaps be attributable to the nature of the structure of the soil. Those plants which do become established are generally of poor vigor. Is this entirely due to the soil structure? May it not also be that there are other factors operative and of importance? The widespread importance of microrhiza in forest reproduction did not gain prominence until comparatively recently. Might it not also be that some similar situation may also exist in grasses? Records of such symbiotic relationships in grasses appear in literature. Certain cursory observations have been made incidental to cytological examination of chromosome morphology and chromosome numbers lead one to suspect that such a relationship may be somewhat general in certain genera. It is possible that these may play a certain role in the adaptability of some forage species. Concurrent with these factors is that of soil productivity. Many desirable forage species are limited to certain soil types of rather high productivity. It would appear that some attention should be given to certain groups that appear able to grow reasonably well over a wide range of soil productivity. There are in the South a number of areas where cover for protective purposes alone would be highly desirable as a safeguard against erosion. Areas whereupon such species are grown could then be subjected to more intensive and scientific management for forage purposes if the need for such intensification arose. The problem of adaptability then becomes one to be judged from a broader utilization angle instead of the narrower forage angle alone.

The problem of seed production and seed viability also plays an important role in species adaptation. It was not until recently that high quality bermuda grass seed was available. The question of hardiness of the seedlings of this species at higher latitudes is one of considerable significance as one approaches the northern limit of the species. Farmers in some portions of the Cotton Belt have observed that seedling development near animal dropping on bare areas are more frequent now than formerly. Will 'woolly finger' go through a similar cycle of adaptation? Associated with this problem is that of tillage practices in seeding. To date there have been all too few extensive and well designed tillage practice studies dealing with the grasses of the South.

The problem of 'What is palatability' needs clarification. How important a role does the lignification of the fibers play in the digestibility of herbage? What is the seasonal march of digestible nutrients in Southern forage plants? Are peak yields of digestible nutrients per acre coincident with peak herbage production? Over how long can this peak of digestible nutrients be maintained? How are these to be correlated with biochemical studies which are frequently taken at a later stage of plant development than would be desirable for grazing purposes?

It appears that in the Southern latitudes of this country that parental breeding stock should be considered first from the ecological probabilities of reasonable performance under the edaphic and climatic conditions that obtain in that region. Seasonal adaptation, i.e., for vernal, summer, or autumnal forage production should be considered, the vegetative habits, the possibilities of positive economic returns from utilization, the suitability of seeding after previous tillage and current rotation practices, the soil chemistry, the soil physics, and the soil microflora may also be contributing factors. The adaptability of grasses to a wide range of soil types and of soil productivity should also be considered. Winter hardiness, methods of establishment, and biochemical and nutritional problems also appear as factors desirable for consideration under 'adaptation'. When we have routed out the undesirable by these and similar observations, we can then approach the more meticulous cytologic and hybridization work which, for the most part, lies ahead."

New introductions should be tested for their practical use as well as growth response. Collectors should give more information about the species in order to guide the agronomist in handling test plots. Introduction gardens should be more strategically located especially as regards soil types and fertility levels.

Some species, such as bermuda grass, are already locally adapted but for too low a fertility level to be of the greatest value. Growers should be encouraged to aim at a higher fertility level. Livestock might be bred for adjustment with economic gains to lower nutrition levels. The management practice will also greatly effect the type of forage desired.

The A.A.A. and S.C.S. programs may have a direct bearing on the objectives of the forage crop breeder.

Two schools of thought - One is to develop plants (and an agriculture) adapted to the present fertility level. The other is to aim for a nigher fertility level, improved livestock and a better agriculture. It is believed dangerous to develop plants for poor soils or to use only poor land plants for rebuilding. Kudzu fertility requirements are under estimated--it is shifting to better lands at present. Pines are adapted to low level fertility. It is important to test plants under different conditions and to work out their needs in specific environments. It is necessary to analyze plant and environment, fit them together, and then try to forecast what the plant will do in the new environment as regards length of day, temperature, fertility level, etc. Mature wire grass (Aristida) is used by cattlemen for winter grazing. It will grow and is adapted here in the South. Carpet and centipede are adapted but often considered undesirable. Why not try and overcome carpet grass shortcomings?

In the black soil belt of Alabama, black medic can be grown first and then replaced by white clover. It is necessary to work into climax vegetation gradually, but it may be difficult to get rid of intermediate stage plants. Studies are needed on eradication of intermediate stage plants such as carpet and centipede grasses.

A thorough study of plant associations is needed. Legumes are essential to a successful grass culture. Legume continuity is important in permanent stands.

Prevalent diseases must be considered in adaptation and breeding studies. They greatly affect stand, yield and quality. Demonstrations were made by plant pathologists present. One of most serious diseases is ergot on dallis and other grasses. A new disease-resistant Sudan grass was shown during the morning field trip.

Livestock needs:

Four important considerations are as follows:

1. Palatability is important in maximum production
2. Effect on health of animal and on the product
   Flavors milk, ergot on reproduction, etc.
3. Quantity in peak seasons, supplements will help stretch out season. Also early and late strains of forage. Will reduce cost of production when grazing.
4. Quality--composition of herbage in relation to needs of the animal. Requirements are water, protein, energy, also supply of iodine, calcium, phosphorus, iron, cobalt, etc. Sulphur supplied through plant especially in volcanic ash soils. Legumes carry more phosphorus than grasses. Trace elements in plants difficult to detect in amounts needed. Selection of feeds can help in supplying needs.

Different kinds of livestock have different preferences. Both production and nutritive value should be measured. Pure stands not sufficient balance. Mixture of grasses and legumes is the best way to supply needed balance.

The soil, plant and animal all need to be improved together. Certain compounds not necessarily related to yield. Association of plants with a supplementary ration as best plan. Most rations in South are calcium deficient.

Annual grazing crop help in supplying calcium needs.

Certain periods in grazing season, plenty of feed but none or poor gains.

If phosphorous is deficient in animal there is little gain even though plenty of feed.

Lack of fencing is a handicap in pasture improvement.

FUTURE MEETINGS

The group was unanimously of the opinion that these technical conferences be held annually for a number of years and requested that the Executive Committee plan accordingly. An invitation from Director Wilmon Newell, of the Florida Agricultural Experiment Station, to meet at Gainesville, next year was read. Dr. Fergus of Kentucky indicated to the Executive Committee verbally that he thought the Kentucky Experiment Station was also interested in having the group meet in Lexington in 1941. The Conference agreed that it would be desirable to withhold selecting a meeting place until the winter meeting with the Association of Southern Agricultural Workers at Atlanta, Georgia, in February.

SUGGESTED TOPICS FOR DISCUSSION AT FUTURE MEETINGS

It was expected that at this first meeting the group would be concerned primarily with the general aims and objectives of the conference and a consideration of the general problems involved rather than a detailed discussion on specific problems. Following this first meeting it is expected, however, that the group will select specific topics for detailed consideration, particularly problems involving methods and technic. The following topics were tentatively suggested by those in attendance as worthy of consideration at some future meeting:

1. Methods and procedures for measuring pasture herbage
2. Palatability determinations
3. Methods for establishing pasture herbage
4. Standard expression for ecological conditions
5. Uniform grass and forage nurseries
6. Breeding methods for various grass species
7. Seed production methods
8. Pasture management
9. Use of grass in erosion control
10. Seed viability and scarification
11. Fertility levels for forage crops
12. Plant associations in relation to soil types
13. Nutritional problems
14. Economy of grassland farming
15. Grassland cropping systems
16. Farm management problems
17. Outline of general program of objectives
18. Feeding and nutritional tests

GENERAL CONFERENCE ON GRASSLAND PROBLEMS

The conference of technical workers was followed by a two day Regional Grassland Conference open to the general public. Director Starr was chairman of the Regional Committee that arranged the general program.

In America's trend toward a grassland agriculture it is evident, and essential, that greater consideration be given to the productivity of various forage and pasture crops as compared to other harvested feed crops, and to the relative differences in composition and feeding value. Greater consideration of these and related problems was brought about by encouraging a series of special "Grassland Research Conferences" usually in conjunction with other meetings, especially the summer meetings. Such conferences are particularly successful in the summer when the specialists have an opportunity to examine and study the investigational work under way in the various sections of the country.

When arrangements were under way for these Regional Technical Grassland Conferences, the question was repeatedly asked as to when the public was to be taken into our confidence as to our objectives, procedures, progress to date, research needs, etc. The Pasture Improvement Committee considered the desirability of the group, sponsoring, or assisting regional groups with general meetings to which the public would be invited, these general meetings to be held for one or two days immediately following the technical conferences. By the public we had in mind state and federal workers and the agricultural leaders in the region--that is, leaders of farm organizations, outstanding farmers, ranchers, county agents, action agencies, industries, railways, etc.

The Regional Grassland Conference in the Southeastern Section of the country was held at the Georgia Coastal Plain Experiment Station, Tifton, Georgia, July 25-26, 1940. The Conference was officially sponsored by the Association of Southern Agricultural Workers and the Pasture Committee of the American Society of Agronomy. The program consisted of three general sessions, as follows: (1) "General Perspective", (2) "Economic and Social Impacts of a Grassland Agriculture", and (3) "How to Achieve a Grassland Agriculture Suitable to the South". The afternoon of the first day was devoted to nine group discussions on pertinent grassland problems. Each afternoon field excursions were organized to visit pasture and grass breeding plots on the Experiment Station. The meeting had an enthusiastic attendance of about 500 people.

The Regional Grassland Conferences in the various sections of the country seemed to meet with much favor. In two regions invitations have already been extended by universities to continue the Conferences in some form next summer. A survey among those in attendance at these Conferences during the past year seemed to indicate that it would be desirable to have Regional Grassland Conferences at least once in 3 to 5 years, inviting the agricultural leaders to participate. More immediate needs, however, are Regional Conferences of technical workers to provide an opportunity to exchange ideas by way of informal discussion of methods and technics for carrying on grass and pasture research. Such a group, composed of collaborators of the U. S. Regional Pasture Research Laboratory at State College, Pennsylvania, has been formally organized in the Northeastern Region. In the Southeast the Technical Conference will be sponsored annually by the Pasture and Forage Crop Improvement Committee of the Association of Southern Agricultural Workers. In the Northcentral Region a group has been meeting informally for a number of years with the summer meeting of the Corn Belt Section of the Agronomy Society. During the past summer this group gave way to the general Grassland Conference held at Ames, Iowa. It will meet again in 1941 at Purdue University, Lafayette, Indiana. In the Mountain States technical conferences may be continued in the future in close association with the Range Management staff of the Forest Service, and in the Southern Great Plains, with the various agencies concerned with the revegetation and range problems common to the "Dust Bowl" and adjacent territory.

Many excellent papers were presented at the 1940 Regional Grassland Conferences and numerous inquiries and requests for copies have been received. A number have been mimeographed for preliminary distribution or publication in various trade and technical journals. Mr. Gove Hambidge, editor of the U. S. Department of Agriculture Yearbook, is considering the possibility of publishing these papers in the form of a Grassland Conference report or regional grassland pamphlets.

While the primary aim of the Regional Grassland Conferences is to bring together the technical workers such as agronomists, soil, range, dairy, livestock, nutritional, farm management, and economic specialists, leaders of farm organizations, extension workers, county agents, and specialists in agricultural departments of industries, railroads, and financial institutions, there is still the need to bring the grassland problems and methods for improvement to the attention of the farm and ranch operators. Several state institutions have proceeded to make arrangements for State Grassland Conferences. This is a desirable development and it is hoped that the local interests will proceed with such plans. Reports

have also been received to the effect that a number of the institutions are making arrangements for "Grassland Days" at their annual Farm and Home Week. One of the industrial organizations is also formulating plans for local Grassland Research Conferences to bring to the attention of the specialists in this field the progress to date and future needs.

RESOLUTIONS

The Resolutions Committee, appointed by the chairman of the Southern Pasture and Forage Crop Improvement Conference, wishes to present the following Resolution:

We, The members of the Southern Pasture and Forage Crop Improvement Conference, wish to express our sincere appreciation to the University system of Georgia, represented by Director S. H. Starr and the staff of the Coastal Plain Experiment Station, and Dr. George H. King, President of Abraham Baldwin Agricultural College, and the Cafeteria staff for their cordial hospitality, their time and effort in arranging for our comfort and convenience, and the efficient manner in which the work has been presented.

We are also indebted to the Conference Committee for arrangement of an interesting and profitable meeting and we wish to recommend that similar meetings be planned for the future.

Signed

Resolutions Committee

W. W. Woodhouse, Jr.
E. D. Alexander
M. A. Hein

PARTIAL LIST OF THOSE IN ATTENDANCE AT THE CONFERENCE

July 23 and 24, 1940

Alabama

H. R. Albrecht
J. F. Duggar
J. W. Richardson

Arkansas

Etlar L. Nielsen

District of Columbia

O. S. Aamodt
A. E. Brandt
M. A. Hein
E. A. Hollowell
H. L. Hyland
C. L. Lefebvre
R. H. Lush
Roland McKee

Florida

R. B. Becker
R. E. Blaser
F. T. Boyd
W. M. Neal
G. E. Ritchey
J. D. Warner

Georgia

E. D. Alexander
G. W. Burton
B. H. Hendrickson
O. E. Sell
B. L. Southwell
S. H. Starr
J. L. Stephens
J. L. Weimer

Kentucky

E. N. Fergus
Lawrence Henson
T. H. Rogers

Louisiana

R. B. Carr

Mississippi

T. F. Akers
H. W. Bennett

North Carolina

E. W. Faires
R. L. Lovvorn
Ben W. Smith
R. E. Stitt
W. W. Woodhouse, Jr.

Ohio

D. R. Dodd

South Carolina

Paul Tabor

Tennessee

J. K. Underwood

Virginia

A. L. Grizzard